



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,015	09/11/2003	Walter Schreiber	CAO-0428	5914

23413 7590 04/13/2007
CANTOR COLBURN, LLP
55 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

EXAMINER

ALI, SHUMAYA B

ART UNIT	PAPER NUMBER
----------	--------------

3771

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/660,015

Applicant(s)

SCHREIBER, WALTER

Examiner

Shumaya B. Ali

Art Unit

3771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed on 12/18/06 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references (see argument filed on 12/18/06, page 6, lines 17-19), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, reference to Smith is considered to teach the structures and method of making an earplug. Smith teaches "water jet" cutting steps (see col.5, lines 60-65 of Smith) as cited in the claimed invention, however lacks the detailed steps of "water jet" cut as cited in claims 5-8, 16-21, and 23. However, Cut Smart reference to Baril teaches how to cut foam (i.e. earplug) using water jet. Given that Smith teaches a foam earplug and method of obtaining the foam earplug using waterjet, and Baril teaching a method of cutting foam using waterjet, there is nothing that would prevent one of ordinary skill of art to use waterjet cutting technique of Baril to cut foam materials including earplugs. Thus, the combined references, Smith in view of Baril is obvious over obtaining the end product and method of deriving the end product of the claimed invention.

Applicant's argument with respect to "Smith does not teach or suggest forming a sheet of material to include a thickness substantially equal to a longitudinal length of the resulting

Art Unit: 3771

earplug...Smith does not recite a sheet at all...Instead the reference discloses an elongated extruded monolithic structure 22, i.e., cylindrical extrudate. Moreover, a thickness of the extruded cylinder corresponds to a minor axis (i.e., the non-longitudinal axis) of the resulting earplug" (see argument filed on 12/18/06, page 7, lines 21-26) is not well taken. First, it should be noted that the claims are examined with the broadest reasonable interpretation and in that regard the limitation of "a sheet of material" broadly reads over Smith's foam structure (see fig.2-7, reference object 14). Furthermore, Smith teaches the sheet of material is about 10-20 millimeter in diameter having a length of about 10-35 millimeter (see col.2, lines 15-20). Thus Smith teaches the claimed limitation of a sheet of material that includes a thickness substantially equal to a longitudinal length of the resulting earplug, thereby Applicant's later argument with respect to "extruded cylinder corresponds to a minor axis" becomes irrelevant.

In further argument Applicant presented that "Smith does not teach or suggest cutting the sheet though the thickness thereof in a direction generally orthogonal to the length of the sheet" (see argument filed on 12/18/06, page 7, lines 27), however such argument is not well taken. According to the standard dictionary definition, the term "orthogonal" is relating to or composed of right angles, and Smith teaches cut that is generally orthogonal to the length of the sheet (see figs.2 and 7). Applicant's attention is directed to figures 2 and 7 of Smith where ends of the longitudinal body (14) of the earplug are depicted as straight/flat cut (16). It is obvious to one of ordinary skill of art that a cut right angle/orthogonal to the longitudinal body can only yield straight /flat ends. Thus, Smith teaches cutting the sheet in a direction generally orthogonal to the length of the sheet.

Art Unit: 3771

Applicant further argued that the Cut Smart reference does not teach or suggest any of the limitation of claim 1 (see remark filed on 12/18/06, page 8, lines 10-14), however such argument is not well taken. It should be noted that Smith teaches all claimed limitations except for specific cutting steps using a water jet, i.e. "maneuvering at least one of the sheet and the high pressure water stream" as recited in claim 1. However, Cut Smart reference, as discussed above teaches said limitation (see page 1, paragraph 2 of Baril/Cut Smart) to cure Smith's teaching. Thus, Smith in combination of Cut Smart reference to Baril render obvious the limitation cited for claim 1.

Applicant further used the above argument for claims 22 and 23, however Smith in view of Cut Smart to Baril teaches the claimed invention as discussed above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,3-10, and 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. US Patent No. 6,408,981 B1 in view of Non-patent literature to Baril, 2004, Cut Smart Engineering & Manufacturing, Inc.

As to claims 1, Smith discloses a method of forming an earplug, comprising providing a sheet of a compressible (see abstract), resilient material ("soft and flexible to provide a comfortable fit for the wearer", col.3 lines 25-26) having a length substantially greater than a

Art Unit: 3771

thickness (col.2, lines 15-20), forming the sheet to include a thickness substantially equal to a longitudinal length of the earplug (see figs. 1-7), positioning the sheet proximate to a water jet assembly (see col.5, lines 55-68), cutting the sheet through the thickness in a direction generally orthogonal (see flat surface 16 in figures 2 and 7, which is derived by an orthogonal/perpendicular cut along the longitudinal length of the earplug 14). Smith however lacks the detailed steps of water-jet cut, i.e., activating the water jet assembly to emit a high pressure water stream; and contacting the sheet with the water stream, maneuvering at least one of the sheet and the high pressure water stream such that the stream traces on the sheet an outer edge of a cross-section of the earplug, and delimiting by said cutting and said maneuvering, at least one said of the earplug which extends generally along the longitudinal length of the earplug; and serving the earplug from the sheet by said cutting and said maneuvering. Although, Smith discloses an alternative method of making the earplug, however teaches that the monolithic structure may be cut into discrete pieces using any of variety of conventional cutting devices including water jet (col.5 lines 60-63). Therefore, it would have been obvious to one of ordinary skill in the art to obtain the specific cutting steps using Smith's teachings of applying water-jet to cut earplugs. Furthermore, such detailed water-jet cutting steps are well known in the art. Baril teaches waterjet cutting as a processing tool that uses high pressure water for cutting many soft and semi-rigid materials like paper, plastic, and foam (further suggesting process can be applied for making earplug, which are conventionally made from resilient foam material). Baril further teaches high-pressure water (50,000-60,000 psi) passes through a jeweled orifice that ranges from 0.003 to 0.013 inches and the flow enters a mixing tube or nozzle that ranges in size from 0.015 inches through 0.05 inches in diameter. Therefore, it would have been obvious to one of ordinary

Art Unit: 3771

skill in art to incorporate the specific water-jet cutting steps to the method step of Smith in order to provide extremely accurate cuts with a high degree of repeatability over a wide range of materials and shapes as taught by Baril (see Cut Smart to Baril, paragraph 5).

As to claim 3, Smith as modified teaches wherein said cutting the sheet comprises contacting the sheet with the water stream substantially perpendicular to a top surface thereof and traversing circular patterns on the sheet to sever the earplug from the sheet, the earplug being substantially cylindrical in shape (Smith teaches a substantially cylindrical earplug, see figs.1-7, with flat ends (16), and Baril teaches water-jet cut, therefore combination of Smith and Baril render method step cited in claim 3 obvious).

As to claim 4, Smith as modified teaches wherein said positioning the sheet comprises conveying the sheet using a conveyor belt and depositing the sheet on a salt because it would have been obvious to one of ordinary skill in art to obtain the method step as cited by using the apparatus of Smith as modified by Baril (see rejection cited for claim 1).

As to claim 5, Smith as modified teaches wherein said activating the water jet assembly comprises a computer controller controlling a pump for generating the high-pressure water stream (see paragraph 2 of Baril).

As to claim 6, Smith as modified teaches catching the high pressure water stream in a catching tank after said cutting and severing, filtering said water after said catching, and pressurizing said water after said filtering (see paragraph 2 of Baril).

As to claim 7, Smith as modified teaches wherein the high-pressure water stream includes a pressure of approximately 50,000 pounds per square inch (see paragraph 2 of Baril).

As to claim 8, Smith as modified teaches wherein the high-pressure water stream is emitted through an orifice having a diameter of approximately 0.005 to 0.010 inches (see paragraph 2 of Baril).

As to claim 9, Smith as modified teaches wherein said orifice is formed in a ruby or a sapphire or a diamond jewel (Baril further teaches the stream of water causes a vacuum which draws finely crushed garnet (the abrasive) and as the water enters the mixing tube it mixes with the garnet, exiting from the tube at incredible forces making contact with the material to be cut, see paragraph 2 of Baril).

As to claim 10, Smith as modified teaches wherein said cutting comprises forming a kerf in the sheet, the kerf having a width of approximately 0.005 to 0.020 inches (see paragraph 2 of Baril).

As to claim 16, Smith as modified teaches contacting a portion of a surface of the earplug with the high-pressure water stream to ablate the portion, forming a detail on the surface (see paragraph 2 of Baril).

As to claim 17, Smith as modified teaches wherein the detail is etched into the surface so as to be inset therein (such method step would have been obvious over the using the apparatus of Smith in view of Baril).

As to claim 18, Smith as modified teaches wherein the portion of the surface is removed to form the detail in relief (such method step would have been obvious over the using the apparatus of Smith in view of Baril).

As to claim 19, Smith as modified teaches wherein the detail comprises at least one of a pattern and an angled shaping (such method step would have been obvious over the using the apparatus of Smith in view of Baril).

As to claim 20, Smith as modified teaches wherein the angled shaping comprises tapered side portions providing the earplug with at least one of a conical, frustoconical, and pyramidal shape (see figs. 1-7 of Smith).

As to claim 21, Smith as modified teaches wherein said contacting the sheet comprises engaging the sheet with the water stream at an angle to a longitudinal axis of the earplug and wherein said cutting the sheet and said severing the earplug comprises tracing an end of the earplug on a top surface of the sheet while maintaining the angle of the water stream relative to the longitudinal axis to form the earplug including a conical or pyramidal shape (see col.2, liens 13-19, and figs. 1-7 of smith).

As to claim 22, Smith teaches a method of forming an earplug, comprising: forming a sheet of resilient, compressible full-recovery foam material ("soft and flexible to provide a comfortable fit for the wearer", col.3 lines 25-26), so as to include a thickness substantially equal to a longitudinal length of the earplug (see col.2, liens 13-19). Smith however lacks the detailed step of water-jet cut, i.e., conveying the foam sheet to a water jet cutting assembly; depositing the foam sheet on a slat; pressurizing water in the water jet cutting assembly with a pump; delivering the pressurized water through a jewel in a high pressure stream; contacting the foam sheet with the high pressure stream in a direction generally perpendicular to the sheet; and maneuvering the high pressure stream to cut the foam sheet, shape-to delimit elongated sides of the earplug extending substantially along the longitudinal length of the earplug, and to sever the

Art Unit: 3771

earplug from the foam sheet. Although, Smith discloses an alternative method of making the earplug, however teaches that the monolithic structure may be cut into discrete pieces using any of variety of conventional cutting devices including water jet (col.5 lines 60-63). Therefore, it would have been obvious to one of ordinary skill in the art to obtain the specific cutting steps using Smith's teachings of applying water-jet to cut earplugs. Furthermore, such detailed water-jet cutting steps are well known in the art. Baril teaches waterjet cutting as a processing tool that uses high pressure water for cutting many soft and semi-rigid materials like paper, plastic, and foam (further suggesting process can be applied for making earplug, which are conventionally made from resilient foam material). Baril further teaches high-pressure water (50,000-60,000 psi) passes through a jeweled orifice that ranges from 0.003 to 0.013 inches and the flow enters a mixing tube or nozzle that ranges in size from 0.015 inches through 0.05 inches in diameter. Therefore, it would have been obvious to one of ordinary skill in art to incorporate the specific water-jet cutting steps to the method step of Smith in order to provide extremely accurate cuts with a high degree of repeatability over a wide range of materials and shapes as taught by Baril (see Cut Smart to Baril, paragraph 5).

As to claim 23, Smith as modified teaches wherein said contacting the sheet comprises engaging the sheet with the water stream at an angle to a longitudinal axis of the earplug and wherein said cutting the sheet and said severing the earplug comprises tracing an end of the earplug on a top surface of the sheet while maintaining the angle of the water stream relative to the longitudinal axis to form the earplug including a conical or pyramidal shape (see figs.1-7 of Smith).

Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. US Patent No. 6,408,981 B1 and Non-patent literature to Baril, 2004, Cut Smart Engineering & Manufacturing, Inc and in view of Williams US Patent No. 5,573,015

As to claim 11, Smith as modified lacks piercing the sheet with the high-pressure water stream forming a hole therein then said cutting the sheet around the hole such that the severed earplug includes the hole. However, earplug with hole extending along a longitudinal axis of the earplug entirely through the earplug and a stem being inserted in the hole as cited in claims 11-15 are well known in the art. Williams teaches earplug in figures 1-8 with core 12 inherently situated inside a channel or hole with stiffer material, i.e. semi-rigid in order that it can provide structural rigidity for the earplug (see col.3 lines 29-38). Therefore, it would have been obvious to one of ordinary skills in the art at the time of the invention to modify the earplug of Smith in order to provide rigidity to the earplug as taught by Williams.

As to claim 12, Smith as modified teaches piercing the severed earplug with the high pressure water stream forming a hole therein, said piercing occurring after said severing (see col.3 lines 29-38 of Williams).

As to claim 13, Smith as modified teaches wherein the hole is formed extending along a longitudinal axis of the earplug entirely through the earplug (see col.3 lines 29-38 of Williams).

As to claim 14, Smith as modified teaches inserting an item in the hole and bonding the item to the earplug at the hole (Smith in view of Baril and as modified by Williams teaches structures to perform the method steps cited for claim 14, therefore the method step would have been obvious result of using the apparatus of Smith as modified by Baril and as further modified by Williams).

Art Unit: 3771

As to claim 15, Smith as modified teaches wherein the item comprises at least one of a stem, a metal detectable insert, or an end of a cord (Smith in view of Baril and as modified by Williams teaches structures to perform the method steps cited for claim 15, therefore the method step would have been obvious result of using the apparatus of Smith as modified by Baril and as further modified by Williams).

Conclusion

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

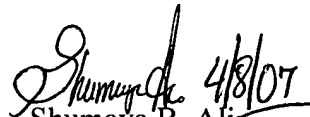
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

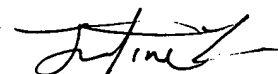
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shumaya B. Ali whose telephone number is 571-272-6088. The examiner can normally be reached on M-W-F 8:30am-5:00 pm.

Art Unit: 3771

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on 571-272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Shumaya B. Ali
Examiner
Art Unit 3771


JUSTINE R. YU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700
4/10/07